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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,002	03/19/2004	Masashi Yokomori	42478-3817	7786

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EXAMINER

SHECHTMAN, SEAN P

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/805,002	Applicant(s) YOKOMORI ET AL.	
	Examiner Sean P. Shechtman	Art Unit 2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/164,208.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Claims 23-32 are presented for examination. Claims 1-22 have been cancelled.

Priority

2. This application filed under former 37 CFR 1.62 lacks the necessary reference to the prior application. A statement of the current status of the parent nonprovisional application(s) should be entered following the title of the invention or as the first sentence of the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 23-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Examiner respectfully submits that the instant specification fails to provide enablement for obtaining differences between stored NC data that had been most recently stored prior to the generated NC data and generated NC data from the production schedule.

The instant specification teaches a difference display function that fetches data in terms of production parameters and outputs a display showing the difference between the two pieces of data, wherein this data is in terms of production parameters such as data type (Fig. 6A, pages 22-23). The instant specification goes on to provide for a display showing the difference between two pieces of data, wherein the data is in terms of some code or NC data from files of two versions. Fig. 16 clearly teaches and shows the functional relationships between functions. Fig.

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19 and the description thereof clearly teaches a line manager feedback function that sends, as the feedback, the data obtained during actual manufacturing stages in the mounting apparatuses (the data of what parts have mounting defectives, or what boards are difficult for certain parts to be mounted thereon), wherein said data obtained is stored as the fact NC data. Page 28 and Fig. 21 clearly teaches and shows the NC data management apparatus may compare NC data generated from design information by a CAM system with inspected NC data that has been adjusted so that each piece of equipment can produce a conforming item, and sending data showing the results of the comparison to the CAM system master, as feedback. Page 23, lines 10-21 clearly teaches a data string management function as follows:

“The data string management function is performed using the data hierarchy shown in FIG. 7 and the data tables shown in FIG. 2. The data hierarchy shown in FIG. 7 is applied to both the NC management apparatus 6 and the common database management system 1. It is understood from FIG. 7 that the highest layer includes files such as CAM master, NC management master, inspected, common parts library, and production preparation list, and the lower layers include, in the case of the CAM master file, "line 1" file, equipment file "MV2V.sub.-- 1A" or the like. Similarly, in the case of the NC management master file, "line ID" file, "equipment ID" file, "data type ID" file, "PG-Ver-ID" file or the like are stringed sequentially.”

The examiner respectfully submits that the instant specification fails to provide enablement for, and one of ordinary skill in the art would not understand how to interpret the phrase “most recently”, and/or the time frame and/or limitation with which it encompasses. Therefore the examiner is unable to determine the metes and bounds of this limitation in the claims and the prior art rejection below is based on the claims as best interpreted by the examiner.

The examiner respectfully asserts that the difference function taught by applicant can, at most, provide for obtaining the difference between two sets of data of the same type. However, should applicant maintain that the instant specification and claims provide enablement for

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obtaining differences between stored NC data that had been most recently stored prior to the generated NC data and generated NC data from the production schedule, the examiner would respectfully request that applicant provide where the instant specification teaches NC data considered to be most recently stored and where the instant specification teaches how or why it is considered to be stored most recently.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 23-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "most recently" in claim 23 is a relative term which renders the claim indefinite. The term "most recently" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The stored NC data has been rendered indefinite by the use of the term "most recently".

Referring to claim 28, lines 1-3, it is unclear what has "means for storing...", - a production system, a production line, a plurality of mounting apparatuses?

Referring to claim 28, lines 9-11, it is unclear what is "including production parameters for each mounting apparatus", - NC data, production schedule?

Claim 28 requires a difference obtaining step for obtaining differences "in terms of each production parameter", however, claim 28 requires "means for storing NC data of items previously produced on the production line including production parameters" and claim 28

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requires “an NC data acquiring step for acquiring NC data used for operating each mounting apparatus from the acquired production schedule including production parameters for each mounting apparatus”. The examiner respectfully asks which production parameters are “each production parameter”?

Claim 26 recites the limitation "the difference obtaining means" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. Rejections withdrawn in light of the amendment filed November 10th 2005.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 23, 24, 28, 29, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,757,648 to Nakamura.

7. Claims 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,757,648 to Nakamura in view of U.S. Pat. No. 5,822,210 to Kobayashi.

Referring to claims 23, 24, 28, 29, Nakamura teaches

a production schedule acquiring step for acquiring a production schedule, for operating pieces of production equipment to provide an output of production items from the production line, from a scheduling apparatus (See Fig. 5 and Fig. 4, elements 22, 26, 28 and Fig. 7, element 22; Col. 3, lines 59-60; Col. 4, lines 57-64);

an NC data acquiring step for acquiring NC data used for operating each piece of the production equipment from the acquired production schedule including production parameters for each piece of production equipment (Col. 7, lines 18-24; Col. 8, line 66 – Col. 9, line 6); and

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a difference obtaining step for obtaining, in terms of each production parameter for each piece of the production equipment, differences between the acquired production schedule of NC data and stored NC data of the same type of items (Fig. 9; Col. 7, line 33-64; Col. 14, lines 27-40; Col. 13, lines 51-62);

NC management apparatus retrieving inspected NC data that was generated in the past (Col. 4, lines 37-42; Col. 11, lines 18-27);

Nakamura clearly teaches a machining program converting system that converts original machining programs of equipments into compatible machining programs for substitutive machining equipment “when said machining program converting system determines that the original machining program is not compatible for said substitutive machining equipment” (Col. 14, lines 27-40). The examiner respectfully submits that a machining program converting system that converts original machining programs of equipments into compatible machining programs for substitutive machining equipment “when said machining program converting system determines that the original machining program is not compatible for said substitutive machining equipment” is a production system that can set forth the differences between stored NC data (the program of the machine needing to be substituted) and generated NC data (the program of the substitutive machine) for the same type of items. Both the program of the machine needing to be substituted and the program of the substitutive machine are generated and stored.

Referring to claims 26 and 31, Nakamura clearly teaches the display necessary to meet the claim limitations in column 7, lines 24-29.

Referring to claim 24, Nakamura teaches the NC management apparatus strings the stored NC data (Fig. 9, sequences of various simple objects).

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Referring to claim 29, Nakamura teaches the NC data management above, wherein the production schedule is generated for each version of each production item, each production schedule showing a version of a production item (See Fig. 5), the NC data acquiring means acquires NC data of a version of a production item to be made (Col. 4, lines 57-64), and the difference obtaining means obtains differences between the production schedule of NC data and stored NC data, in terms of each production parameter of a version of the same type of items of the stored NC data (Fig. 9; Col. 7, line 33-64; Col. 14, lines 27-40; Col. 13, lines 51-62).

Referring to claims 23 and 28, Nakamura teaches all of the limitations set forth above and further teaches a generic machine control system, however, Nakamura fails to teach the production equipments are mounting machines.

However, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to use mounting machines because mounting machines aid operators in the mounting of part/components such that operators are not required to perform all of the work by hand, thereby increasing mounting efficiency and freeing up operator resources.

Referring to claims 23 and 28, Nakamura teaches all of the limitations set forth above and further teaches a generic machine control system, however, Nakamura fails to teach the production equipments are mounting machines.

However, Kobayashi teaches analogous art, wherein Kobayashi teaches a manufacturing management system and method (Title; Abstract line 1 of '210) for controlling a production line, said line having a series of a plurality of pieces of mounting equipment (See Fig. 2 of '210) each of which has a parts supply unit (See Fig. 2, elements 2, 3, 11, 32; Col. 38, lines 29-31; Col. 1,

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lines 31-68; Col. 5, lines 1-17; Col. 6, lines 38-57; Col. 9, lines 50-67; Col. 10, lines 13-49; Col. 11; Col. 13, lines 1-20 of '210).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of Kobayashi with the teachings of Nakamura.

One of ordinary skill in the art would have been motivated to combine these references because Kobayashi teaches a manufacturing management system having set-up support for performing set up in a highly efficient manner (Col. 1, lines 7-9 of '210). Further advantages of Kobayashi are directed toward using parts wheels for accurately and efficiently mounting parts (Col. 35, lines 21-30 of '210). Furthermore, Kobayashi teaches efficient arrangement of parts reels (Col. 36, lines 4-13 of '210). Further still, Kobayashi teaches efficient allocation of parts reels to machines (Col. 36, lines 26-39 of '210). Further still, Kobayashi teaches a system and method that allows a versatile SMT mounting line, in which equipment specifications and arrangements differ, to create NC data and set-up information automatically (Col. 4, lines 32-37). Further still, Kobayashi teaches a system and method to raise the activity rate of a mounting line by grouping manufactured circuit boards. Further still, Kobayashi teaches a system and method to raise the activity rate of an SMT line and achieve small lot, large variety production in an effective manner (Col. 4, lines 51-60).

Referring to claims 25 and 30, Nakamura teaches that each production parameter includes a production equipment ID (Fig. 5, machine equipment), an effective date (Col. 1, lines 14-19). Referring to claims 25 and 30, Nakamura teaches all the limitations set forth above, however fails to teach that the production line is used to mount parts onto a circuit board, and each production parameter includes a production line ID, a parts number ID, and an update date.

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Referring to claims 27 and 32, Nakamura teaches all the limitations set forth above, however fails to teach that the NC data contains an NC program showing a parts mounting position, a parts arrangement program, a board program, and a parts library showing conditions for mounting parts.

However, Kobayashi teaches analogous art, wherein,

referring to claims 4 and 12, Kobayashi teaches the NC data management above, wherein the production line is used to mount parts onto a circuit board, and each production parameter includes a production line ID, a production equipment ID, an effective date, a parts number ID, and an update date (Figs. 16; Col. 12, lines 21-41); and

referring to claims 6 and 14, Kobayashi teaches the NC data management above, wherein the NC data contains an NC program showing a parts mounting position, a parts arrangement program, a board program, and a parts library showing conditions for mounting parts (Fig. 20; Col. 8, lines 24-28, and Col. 18, lines 63-68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of Kobayashi with the teachings of Nakamura.

One of ordinary skill in the art would have been motivated to combine these references because Kobayashi teaches a manufacturing management system having set-up support for performing set up in a highly efficient manner (Col. 1, lines 7-9 of '210). Further advantages of Kobayashi are directed toward using parts wheels for accurately and efficiently mounting parts (Col. 35, lines 21-30 of '210). Furthermore, Kobayashi teaches efficient arrangement of parts reels (Col. 36, lines 4-13 of '210). Further still, Kobayashi teaches efficient allocation of parts reels to machines (Col. 36, lines 26-39 of '210).

Conclusion

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Shechtman whose telephone number is (571) 272-3754. The examiner can normally be reached on 9:30am-6:00pm, M-F.

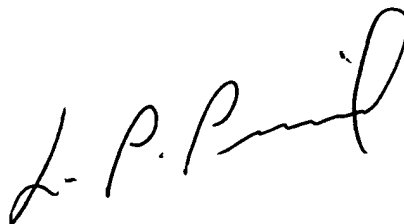
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SPS

Sean P. Shechtman

February 3, 2006



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